Hot Topic 7: A healthy 5yr old is having a hydrocele repair, what pre-operative starvation policy would you use?

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Concerns about the morbidity and mortality associated with aspiration of gastric contents have influenced preoperative fasting policy since the work of Mendelson in the 1940's.

NAP4 (National Audit Project 4) has reported that pulmonary aspiration accounted for 50% of all anaesthesia related deaths. A recent UK multicentre study included 12 paediatric centres in the UK and examined cases over a 1 year period. The sample size was 118 371 and this study by Walker reports an incidence of pulmonary aspiration of 2 per 10 000 cases in elective cases rising to 2.2 per 10 000 cases in non-elective cases. There were 24 cases of aspiration recorded, 5 needed ventilatory support on an Intensive Care Unit but there were no deaths. Light anaesthesia, anxiety, gastrointestinal pathology and an increase in intra-abdominal pressure were the most common risk factors identified. Of 12 cases of intraoperative aspiration (as opposed to at induction) 10 were cases in which the airway was managed with a laryngeal mask airway (LMA) and 4 of these were noted to be receiving light anaesthesia.

In a recent review article Kelly and Walker ascribe the low incidence of aspiration found in this study to the organisation of paediatric care in the UK, with consultant and senior trainee led delivery of services. They suggest that this organisational aspect lends itself to patients receiving an appropriate assessment of their risk of aspiration and facilitates the conduct of safe anaesthesia.

Preoperative starvation is routine practised in the UK in order to limit gastric volume and hence to decrease the risk of aspiration. There is widespread adoption of the 6,4,2 rule (with the notable exception of situations associated with altered gastric motility and emptying) i.e. 6 hours for solid food, 4 hours for breast milk and 2 hours for clear fluids.

Andersson et al have recently published about their experience (outside the UK) of implementing a more liberal fasting policy in relation to clear fluids. Their policy is that children (scheduled to undergo elective surgery) are allowed to drink clear fluids until they are called to the operating suite. This corresponds to at least 30 minutes prior to induction of anaesthesia. The incidence of perioperative pulmonary aspiration at their institution, in a retrospective review of 10 015 elective cases over 5 years, was 3 per 10 000 cases. Those 3 cases of pulmonary aspiration had documented radiological changes. One of these patients was a 5 year old, ASA 1 patient having elective ambulatory surgery for a hydrocele – the scenario of the patient in the poll. It is described that he was managed with a LMA but vomited and was intubated. He was treated with antibiotics and kept in overnight then discharged the following day.

There were 14 cases of suspected aspiration, which was defined as vomiting during anaesthesia with subsequent obstructed symptoms or obstructed breathing. 98 cases were found to have vomited or regurgitated during anaesthesia. None of the cases were unable to complete surgery, no cases needed intensive care admission or ventilatory support and there were no deaths.

Whilst it is clearly important to address the risk of perioperative aspiration the negative effects of fasting are not to be overlooked and are well described in the literature. Physiological effects such as catabolism, dehydration and hypoglycaemia are recognised. Patients may feel better and are more comfortable and less anxious. A more liberal approach to clear fluid restriction could also allow more flexibility with scheduling of cases.

In the UK setting, where paediatric anaesthesia care is delivered largely by consultants and senior anaesthetists in training it may be that, in carefully selected cases, a more liberal fasting regime for clear fluids could benefit patients without putting them at increased risk of pulmonary aspiration. Patients would have to be carefully selected so that any risk factors for aspiration are identified at an early stage and any change would have to incorporate staff training to ensure that all staff involved in the patient's preoperative care are consistent in the fasting guidance given to patients.

Refs

Walker RWM. Pulmonary aspiration in pediatric anesthetic practice in the UK: a prospective survey of specialist pediatric centers over a one year period. Pediatr Anesth 2013; ***23****: 702–711.*

Christopher J. Kelly, Robert W. M. Walker, Perioperative pulmonary aspiration is infrequent and low risk in pediatric anesthetic practice, Pediatric Anesthesia, 2015, ***25****, 36-43*

Hanna Andersson, Björn Zarén, Peter Frykholm, Low incidence of pulmonary aspiration in children allowed intake of clear fluids until called to the operating suite, Pediatric Anesthesia, 2015, ***25****, 770-777*